NASA'S MISSION TO PLANET EARTH

EARTH PROBES

DATA INFORMATION SYSTEM
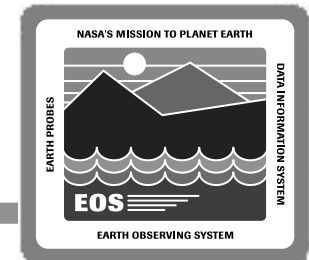
EOS

EARTH OBSERVING SYSTEM

Integration Status
Andy Miller

29 May 1997

FOS TRR Roadmap

Overview Material

FOS Overview
- TRR Objective
- Schedule & Status

Release B Summary
- Release Capabilities
- Release/Reqmt. Status
- Process Summary

Test Readiness Status

Development Status
- Unit Test Results Summary
- SDF Status

Integration Status
- SWIT Status & Results Summary
- NCR Status

EOC Installation Status
- Installation/Checkout Status
- Changes Since Release A
- Hardware, COTS, Software
- PCA Preparation

Test Procedure Status
- Test Procedure Development Process
- Requirements Mapping Status
- Test Data/Test Tools

EOC Test Processes/Plans

EOC Testing Plans
- Test Environment Status
- Test Schedule
- Test Activities
- Test Process

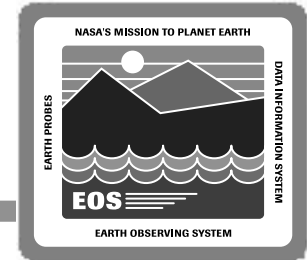## Concurrent Activities

ECT-2
- Preparation Status
- Key Activities

IST Installation
- Status
- Key Activities
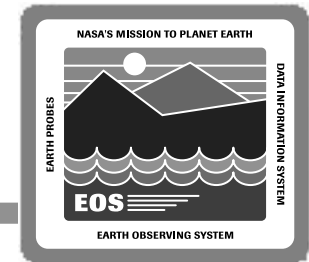- Release B IST Integration Plan

TRR Criteria

Software has been successfully integrated at the mini-EOC

- **Software has been integrated to a mature state so that the dry-run testing can be initiated**

SWIT Background
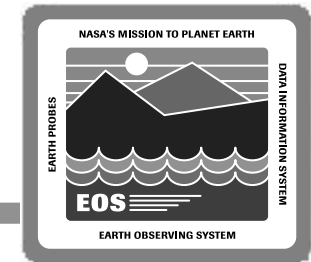
SWITs provide a framework for integrating all FOS functionality

- Provide rigor to comprehensively integrating all of FOS
- Define tests that can be repeated for subsequent integration efforts including patches, CCR enhancements, future builds, etc.
- Provide a check-and-balance of the FOS software between unit test and system test

SWITs

- All FOS requirements were mapped to the SWITs
- Each SWIT has defined a set of key requirements it is integrating
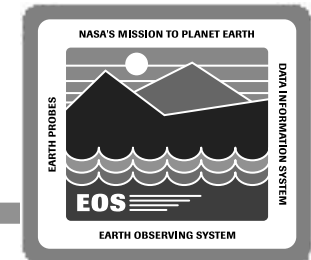
FOS Integration Approach

Focus integration on the critical path

- **Driven by what is required to support ECT-2**
- **ECT-2 tests the interface between the AM-1 spacecraft and FOS**
- **ECT-2 uses the primary FOS functional threads related to telemetry and command**
- **The ECT-2 threads use the core end-to-end FOS functionality**

Integrate FOS by SWIT Groups

- **Cover all FOS functionality**

ECT-2: Critical Integration Path

Telemetry

Telemetry sources
- I & Q channel

Telemetry types
- Housekeeping
- Health and safety
- Standby telemetry

Telemetry processing
- Telemetry configuration
- Decom
- EU conversion
- Limit checking
- Delta screening

Archive
- All telemetry types

Telemetry display
- Display builder
- Dynamic page

Command

Command configuration
- String creation
- Command authority
- Command configuration
- FOP control

Commanding
- Manual
- Ground script
- Procedure

Command Validation
- Critical command
- Prerequisite state check
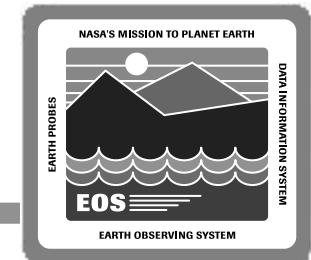- Hazardous command check

Command Verification
- Command receipt (CLCW)

Load Generation & Load Uplink
- ATC
- RTS
- Tables loads

709-CD-003-001

AM-6

SWIT Groups

System Group

- Database
- Desktop
- Events, Procs, Reports
- Startup
- Sys Management, Sys Admin

Scheduling Group

- Scheduling
- FDF
- ASTER Interface
- Late Changes
- What-If Scheduling

Command Group

- Commanding
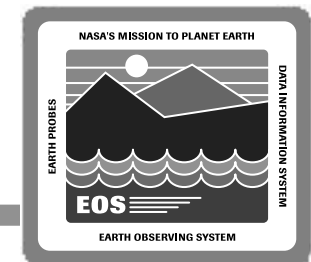- Load Management
- Dumps

Telemetry Group

- Telemetry
- Data Archive
- Data Replay
- Analysis Requests
- Analysis Reports

Contacts Group

- Real-Time NCC and EDOS
- SSR Management and DSS
- Contact Scheduling
- Activity Log and State Check
- Clock Correlation

System SWIT Group Status

Startup, shutdown

System Mgt
- String
- Resource monitor
- Ground control authority

Desktop
- Display builder
- Quick message
- Proc builder
- Room builder
- Tables and graphs
- Reports

Database
- Ingest
- Validation
- Generation

Procedures
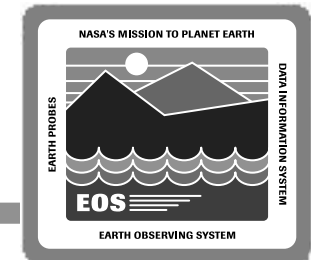- Execution

System Mgt
- Failover

Desktop
- Proc Builder

Database
- Backup and Restore

System Mgt
- Tivoli
- IST pool management

Legend	
▬	Integration complete
▬	Integrated with problems
▬	Integration incomplete

Scheduling SWIT Group Status

Activities
- Activity definition
- Activity level constraints

Timeline
- Scheduling
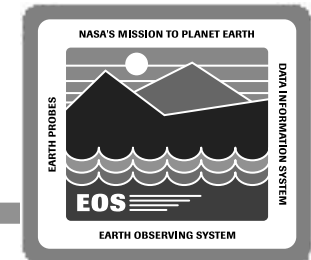- Timeline delete, schedule, and reschedule

Scheduling
- Impact mode
- Complex activities
- What-if scheduling

ASTER I/F

None

Legend	
▬	Integration complete
▬	Integrated with problems
▬	Integration incomplete

Command SWIT Group Status

Commanding
- String Creation
- Command authority
- Manual commanding
- Ground script commanding
- Ground script execution

Command Validation
- Hazardous command check
- Critical command check

Command Verification
- Receipt verification (CLCW)

Loads
- ATC load generation
- RTS loads without submnem
- Flight software loads
- Microprocessor loads

Other
- Constraint checking
- Dump collection

Commanding
- Prerequisite state check
- FOP control
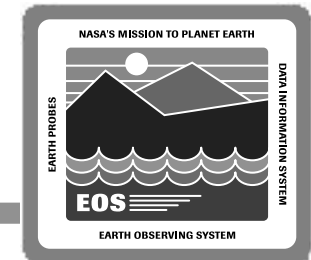- End-item verification
- Late changes

Loads
- Uplink
- RTS loads with submnem
- Directive builder for RTS loads

None

Legend	
	Integration complete
	Integrated with problems
	Integration incomplete

Telemetry SWIT Group Status

Telemetry sources
- I & Q channel

Telemetry types
- Housekeeping
- Health and safety
- Standby telemetry

Telemetry processing
- Decom
- EU conversion
- Limit checking
- Delta screening

Archive
- All telemetry types

Data Replay

Telemetry display
- Display builder

Telemetry Processing
- Telemetry configuration

Telemetrydisplay
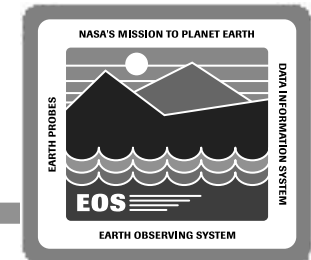- Dynamic page

Analysis Request
Analysis Report

Playback Merge

Schematics

Legend	
▬	Integration complete
▬	Integrated with problems
▬	Integration incomplete

AM-11

Contacts SWIT Group Status

EDOS
- Comm test message

Activity Log
- Real-time monitor

Contact Scheduling
- TDRSS Activity Scheduling
- Ground Station Activity Sched

NCC
- GCMRs
- User performance data
- Comm test message

Contact Scheduling
- NCC scheduling interface
- NCC contact scheduling status

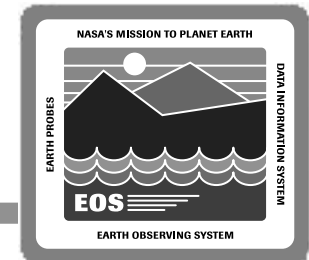**EDOS**
- CODAs

Activity Log
- Archive

State Check

SSR

DSS

Clock Correlation

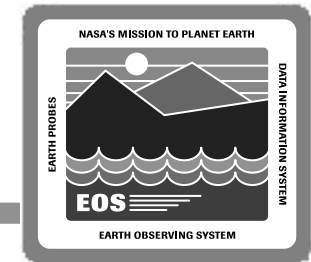| Legend	
▬	Integration complete
▬	Integrated with problems
▬	Integration incomplete

Integration Status

Needed by mid June

Procedure builder
DB backup and restore
ASTER interface
End-item verification
Late changes
Prerequisite state check
FOP control
Uplink
RTS loads with submnem
Directive builder for RTS loads
Telemetry configuration
Playback merge
GCMRs, UPDs, Comm test msg
CODAs
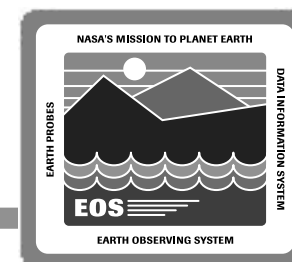Activity log (archive)

Needed by early July

Failover
Tivoli
IST pool management
State check
Analysis request
Analysis report
Schematics
NCC scheduling interface
NCC contact sched status
SSR
DSS
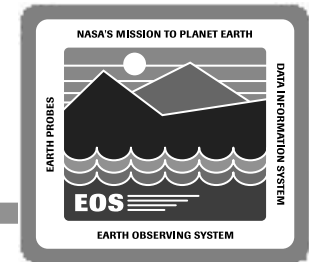Clock correlation

FOS INCR Status

FOS INCRs	Sev1	Sev2	Sev3	Total
Open	1	93	75	169
Fixed	19	56	48	123
Closed	48	19	36	103
Total	68	168	159	395

FOS NCR Status

FOS NCRs	Sev1	Sev2	Sev3	Total
Open	0	109	121	230
Fixed	6	41	69	116
Closed	7	27	31	65
Total	13	177	221	411

FOS Severity Level 1 INCRs

ECSed06594

- **Description**
  - **Dynamic pages are not updating with spacecraft telemetry**
- **Status**
  - **Suspected problem in Parameter Server software**
  - **Currently being evaluated**
  - **Anticipate closing next week**